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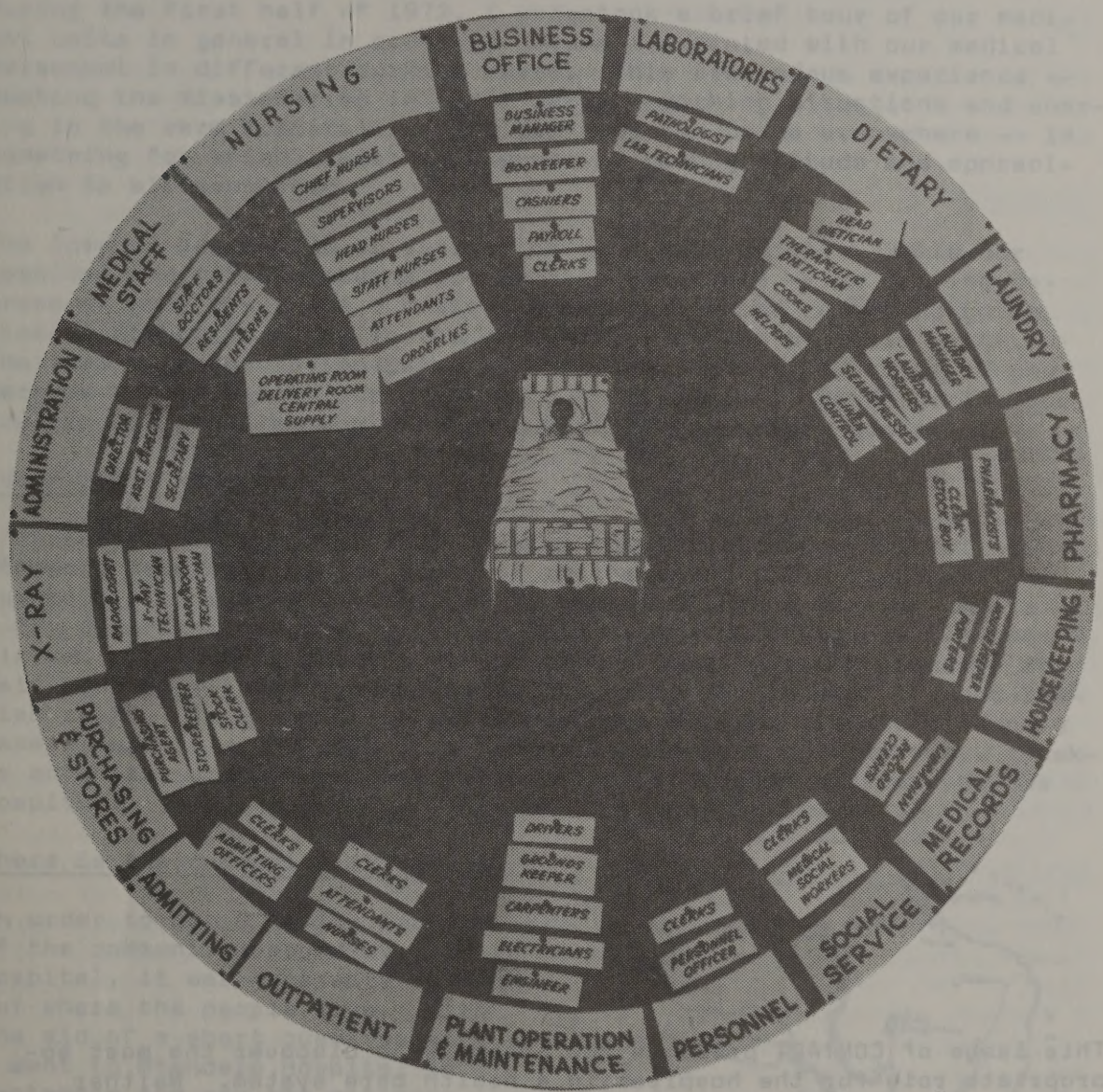
October 1973



the hospital and the health of the community

This issue of CONTACT presents two attempts to discover the most appropriate role for the hospital in a health care system. Neither are very complete studies in themselves, but are presented as an indication of how such an investigation might begin. They are particularly appropriate to the situation in developing countries, where an infrastructure of basic health services is usually inadequate for the needs of the population. In such cases the hospital vainly tries to play the role for which it was not designed and at a subsequent higher cost than the public should have to pay.

Evaluation of medical missions -a pilot project

Interim report by Sr Maureen O'Keeffe, MB, BCh, Lusaka, Zambia

INTRODUCTION

Having completed a small pilot project, the first step in evaluation of our medical work, I give here an outline of the programme to date as well as some raw data extracted from the study.

During the first half of 1972, I undertook a brief tour of our medical units in general in order to become acquainted with our medical personnel in different working areas. This tremendous experience -- meeting the missionaries in their various working situations and sharing in the warm hospitality that was accorded to me everywhere -- is something for which I wish to express my deep gratitude and appreciation to all concerned.

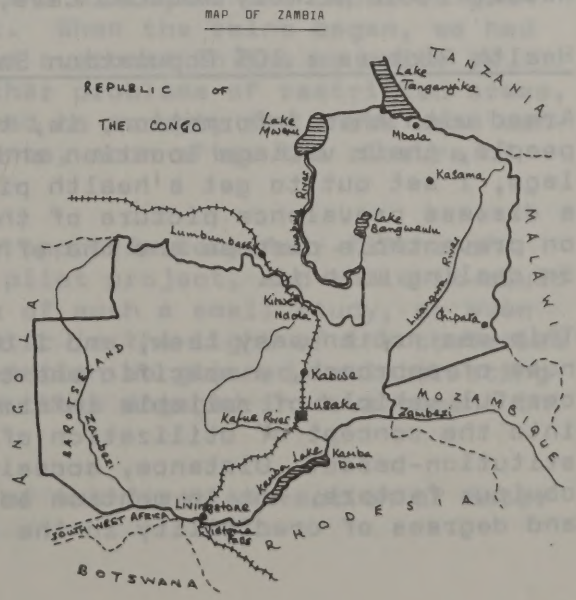
The idea of assessment or evaluation is new to us all. While our hospital and clinic returns are readily available -- in varying degrees of accuracy -- as a basis for study, I hoped rather to get a picture of health needs in the communities served by these units. The idea of a population-based study being totally new to me, I undertook a feasibility survey, really a 'trial run', to determine how practicable the plan would be when applied on a wider scale.

THE PILOT ZONE

I chose the Mtendere Hospital area as the location for a pilot study. Mtendere Hospital, on the banks of the Zambezi, 135 km southeast of Lusaka, is a newly built unit of 70 beds. With the opening of its X-ray department in the very near future, the buildings will be completed. Staffed by one sister-doctor and three nursing sisters, its main problem -- common to all missions -- is the lack of trained Zambian staff. In conjunction with the hospital, the sisters conduct a general clinic every week in a new self-help centre 25 km away. Weekly antenatal and under-fives' clinics are conducted here and at the hospital.

Where is the community it serves?

In order to get a health profile of the community served by this hospital, it was necessary to find out where the people live. With the aid of a short questionnaire, I went to Mtendere Hospital in September and saw the patients attending every day until I had 'collected' 1000. I was especially interested in their village of origin and its distance from the hospital. I also noted other data, such as age, complaint and its severity, mode of travel. Of



the 1000 consecutive attenders whom I saw seeking primary medical care, I noted the following data:

Distance

90% came from within a distance of 32 km of Mtendere Hospital
8% came from within a distance of 50 km of Mtendere Hospital

Of the remainder who came over long distances (even up to 160 km!), the majority were referred patients.

Age

40% were under 5 years of age
15% were of school age (between 5 and 15 years)
45% were adults

Diagnosis

Serious : ie, needing hospital admission + doctor : 5%
Moderate: ie, needing outpatient care ± doctor : 41%
Mild : ie, need not have attended at all : 54%

This was general information and might indicate the need for further study along these lines on utilization of medical care. For the moment, I was mainly interested in the factor of distance; so with the aid of the Central Statistical Office and the Maps Department in Lusaka, it was possible to document each village, its location and population within a 32-km distance of Mtendere Hospital. I decided to confine the pilot study to this area.

Subsequently, the information was corrected with the aid of the hospital staff and especially with members of the Chirundu Malaria Research Team, who had acquired detailed knowledge of the greater part of the Chirundu area. Taking into account the catchment population of the nearest health centres -- ie, Lusitu, approximately 35 km on the west side, and Chiawa, 40 km towards the east across the Kafue River -- I estimated that the population within 32 km, which depended on Mtendere Hospital for primary medical care, totalled 5492 people.

Health Picture : 10% Population Sample

Armed with this information, ie, the population of approximately 5500 people, their village location and the number of inhabitants per village, I set out to get a health picture or more accurately, I suppose, a disease prevalence picture of the community, with special emphasis on preventable disease and the effectiveness of the hospital service in dealing with it.

This was not an easy task, and I doubt that of the many possible avenues of approach, a specific one could be regarded as the only successful vehicle of reliable information. Too many variables enter into the concept of utilization of a health service where it is institution-based. Distance, accesibility and transport are only a few obvious factors, not to mention education needs -- real and felt -- and degrees of credibility in the available treatment.

My approach was to take a ten-percent random sample of the 5500 people, ie, 550 persons, taking into account the general population structure, in that 20 percent of them should be under five years of age, approximately 50 percent under 20 years, and so on.

Briefly, I outlined four categories:

(1) Children under five	:	approximately 110
(2) Children of primary school age, ie, 6-15 years	:	" 110
(3) Women of child-bearing age	:	" 110
(4) Adults	:	the remainder

I endeavoured to get from each person such information as:

- a past history of sickness, noting what the patient considered as serious disease
- where primary treatment was sought
- previous attendance at the hospital, and why
- utilization of under-fives' and antenatal services
- facets of environmental health, eg, availability of food, especially protein and vegetables; supply of water; sanitation; housing, etc.

This I undertook with the aid of an interpreter -- a secondary school girl (Form V) who speaks seven Bantu languages; an oral questionnaire, person-to-person, with a special supplement for mothers and children under five; as well as a Heaf Test and a Bilharzia Test for the school age group. Each person was also given a general physical examination.

THE STUDY

Our target was to see 550 persons over a period of nine weeks, beginning on 2 January 1973. Right from the start our programme went well in that we were welcomed by Headmen and villagers and received gracious cooperation everywhere we went. When the rains began, we had problems of inaccessibility, which we overcame in the majority of cases by travelling on foot. The other problems of restricted areas, landmines and security measures we had to accept, and these were definite limiting factors in our movements, soon after the closure of the Chirundu border.

All in all, we were fortunate to see approximately four-fifths of our target number. This was only a pilot project, and while it would be unwise to generalize on the basis of such a small study, or even to record the study itself as authentic in the light of the obstacles which greatly limited it, what information we gleaned is interesting and will, I am sure, prove useful to those engaged in development in the Chirundu area.

Briefly, the following is a summary of the first extraction of data:

We saw 432 persons representing a household population of 1785.
In that group 16 tribes were represented.
The majority, 70 percent, were Tonga, which is the tribe indigenous to the area.

Occupation of heads of household

58% Farming (agricultural ± pastural)
17% Government officials
20% Employed in the Public Works Departments (daily paid earners, etc)
5% No regular employment

Of the 432 persons interviewed, 357 (84 percent) had attended Chirundu Hospital; of these, 84 percent had attended many times, and 40 percent had been inpatients.

It is interesting to note that of these attenders, 110 were children under five; they constituted 95% of the total number of under-fives seen, and of these, 42 percent had been inpatients.

According to the patients' history, the principle diagnoses at the time of admission (they parallel those of 200 consecutive patients admitted and noted during the time of the study, ie, February 1973) were as follows:

Under-Fives		Others		200 Inpatients	
Diarrhoea and Dysentary	80%	Diarrhoea and Dysentary	80%	Diarrhoea and Dysentary	65%
Cough		Cough		Chest Infections	
Malnutrition		Malnutrition		Malnutrition	
Malaria		Injuries		Malaria	
Gastroenteritis		Infected Wounds, Abscesses, etc		Schistosomiasis	
				Injuries, Infected Wounds, etc	

The same group of diseases constituted 70 to 75 percent of the outpatient attendances during the months of January and February 1973.

Study Group : Signs of Physical Disease Noted

	Adults	School Children	Under-Fives
Blindness, partial/complete	5%	-	-
Conjunctivitis, acute/chronic	5%	1%	9%
Caries, missing teeth	50%	20%	-
Hepatomegaly	4%	3%	-
Goitre	39%	-	-
Splenomegaly	5%	11%	-
Heaf Positive (Stages II, III, IV)	-	16%	-
Bilharzia Positive	-	34%	-

These general figures do not reflect regional differences in disease prevalence, eg, every woman in the villages of one district west of

Mtendere has goitre; and in the Chirundu primary school, 65 percent of the children have schistosoma haemotobium on microscopic examination of one specimen of urine only.

Sample Group : Patients Referred to Hospital : 12%

Pneumonic signs	21
Diarrhoea and dysentary with complications, eg, hepatomegaly	6
Epilepsy	2
Complications of pregnancy	2
Blindness	1
Splenomegaly and anaemia	1
Abdominal mass	1
Acute generalized arthritis	1
Acute low back pain	1
Toxic goitre	2
Acute otitis media	1
Dental emergency	2

Of the 115 under-fives seen, ten were referred with severe Kwashiorkor or Marasmus

IMPACT OF THE UNDER-FIVES' AND ANTENATAL CLINICS

Sample Number of Children Under Five : 115

Holding Road-to-Health Chart	26%
Attending clinic regularly	20%
Totally immunized	16%
Doubtfully and partially immunized	10%
Over one year of age with no immunization	77%
Underweight according to Road-to-Health Chart	33%

Note: All of the totally immunized children live within a distance of 5 km of Mtendere Hospital.

Sample Number of Women in Child-Bearing Age : 112

Women who ever attended, or are attending, antenatal clinic	39%
Pregnant	29%
Intending to deliver at home	28%
With history of still-birth	3.5%
With history of previous complications of child-birth	2%
Had lost one or more under-five children (in almost every case the child was over six months old)	46%

WHAT DO THE DATA MEAN?

The pilot study which I have outlined is merely an introduction to the main evaluation programme which I now plan to extend to a wider sample of our mission units. I would be glad to have comments and criticism of the programme as outlined: Its necessity? Its feasibility? Its value? I emphasize again the inadequacy of the study in that the circumstances limited the working out of what were already tidy plans. Nevertheless, it does supply pointers towards

problems of health care delivery, eg, take the question of distance alone.

If one takes into account the populations at risk at various distances from the hospital, then considering only the attendance during each month while the study was in progress (September 1972, January-February 1973), the following facts emerge:

Distance from the hospital	Ratio of patients attending hospital
5 km	1 in 2
5- 8 km	1 in 3
9-16 km	1 in 5
17-32 km	1 in 17
33-40 km	1 in 46

Although the sample is too small to permit generalization, such an attendance gradient might perhaps suggest that utilization of medical care by communities with similar disease patterns depends not so much on the actual need for it as on the easy availability of medicine for the symptom of the present moment. At least, this might be one interpretation in a free health care system such as ours.

While I have used only raw data and have not attempted to interpret these to any great extent, I think it is fair to say that the bulk of disease seen in the hospital and in the population is community disease. Since the hospital approach, as we know it, meets the needs of individuals, no matter how numerous they may be, one can not expect that, used as the sole vehicle of health care delivery, it will make a significant contribution to the health of the community as a whole.

In the long run, what difference will our Ambilhar and Suplhas make to a community where, as in the case of the study area, over 50 percent of the people depend for their water supply on a bilharzia-infested source at least one kilometre away? Or where only two households in the sample group grow vegetables in an area which has the richest soil in Zambia? Or where, for almost half of the small number who rear poultry, tribal custom prohibits the eating of eggs?

Where the problem is in the community and not essentially medical in its source, the solution would rightfully be sought within the community and in collaboration with those who are professionally concerned, eg, the agricultural people, community development personnel, school teachers, Water Affairs Departments, etc.

I think we are becoming convinced that the health message must begin in the heart of the village and in a way that the people can make their own, so that they gradually -- even if slowly -- assume responsibility for their health care. With this growing conviction, how salutory it would be if we endeavoured, even in a small experimental way here and there, to introduce health projects that have their roots in the community, so that in time the hospital will assume its rightful and more limited place in the health delivery system.

How much of a hospital's work could be done by paramedical workers?

Paper from Bangalore Workshop for the Orientation of Medical Officers and Nursing Superintendents for Community Health Care
- April 1973 -

Helen Gideon, MD

Summary

Analysis of 1032 outpatients and 681 inpatients of eight mission hospitals in six Indian states showed that 48 percent of outpatients and 44 percent of inpatients would probably not have needed to come to the hospital if they had been treated or advised earlier by a paramedical worker.

Material and Method

Hospitals sending delegates to the community health workshop were asked to send a list of inpatients for one week and 1000 consecutive first-attendance outpatients by age, sex and diagnosis. The object was to get the participants of the workshop to analyse this data to get an idea of what percentage of patients need not have been admitted to the hospital if health education, advice, preventive care or simple treatment could have been given to them earlier. Also, what percentage of attendance at OPDs was really necessary either for prevention or treatment.

It was decided that the patients be categorized into 'Preventable' (P) and 'Non-Preventable' (NP). Preventable, where admission and OPD attendance could have been prevented if care had been given and accepted earlier. Non-preventable, where admission or OPD attendance was required for treatment. Before this exercise could be given to the participants, the workshop leaders did a 'test' analysis. A careful look at the lists soon made it clear that patients could not be divided into these two categories alone. For instance, how would one categorize those who came for FTND (full-term normal delivery) or 'New Born'? or cases marked NYD (not yet diagnosed)? or those who came for tubectomy? Could a threatened abortion, febrile convulsion, eclampsia have been prevented? Unless a decision could be made on such diagnoses, the analysis could not proceed.

Consideration had also to be given to the inconsistencies that were bound to occur with each participant's interpretation of what could be called 'P' or 'NP'.

With this very real problem, it was decided to have a third category which was termed 'Special'. This category included all doubtful diagnoses, TFND, new born, etc. Three leading physicians took the lists and marked each patient 'P', 'NP' or 'S'. Careful attention was paid not to overweigh the preventable cases. For the OPD lists it was decided that every fifth case out of 1000 be analysed. The following list serves as an example of the classification in each category:

INPATIENTS

Admission probably non-preventable 'NP'	Admission preventable had simple care been given earlier 'P'	Obstetrical and other unclassifiable diagnoses 'S'
Cancers	Upper respiratory infection	Full-term normal delivery
Accidents & Fractures	Septic abortion	
Pneumonia	Abscess	Abortion
Asthma & Bronchitis	Parasites	New born
Heart diseases	Pulmonary tuberculosis	Tubectomy
Pyelonephritis	Amoebiasis	NYD
Diabetes mellitus	Typhoid fever and immunizable diseases	
Delivery requiring caesarean or forceps	Gastroenteritis	
Hansen's disease needing admission	Malnutrition & anaemia & related infections	
Antepartum haemorrhage		

OUTPATIENTS

Hospital outpatient attendance probably non-preventable 'NP'	Hospital outpatient attendance preventable had early community care been given 'P'	Obstetrical, unclassifiable 'S'
Diabetes	Kwashiorkor, Malnutrition & associated infections	Antenatal
Cancers	Abrasions	Check-up
Fractures	Anaemia & general weakness	
Sterility	Myalgia	
Hypertension	Gastroenteritis & diarrhoea	
Allergies	Hookworm & other parasites	
Epilepsy	Discharging ear	
Surgery	Upper respiratory infection	
Urinary infections	Hyperacidity	
	Immunizable diseases	
	Scabies	

The following table lists the hospitals from where data was obtained.

TABLE 1 Name, location and size of hospital; number of one-week inpatients; number and percentage of patients analysed

Hospital	Beds	Admission date	No. of patients (1 week)	Number analysed	No. not included in analysis 'S'
Holdsworth Memorial Hospital Mysore City	280	1-8 Sep 1972	138	68	70
CSI Hospital Bangalore	200	?	110	79	31
CSI Hospital Woriur Tiruchy 3 Tamilnadu	52	11-17 Feb 73	30	21	9
Mahulpahari Christian Hospital PO Mahulpahari Bihar	120	19-25 March 1973	52	30	22
Holy Cross Hospital Kottayam Quilon Kerala	250	?	196	163	33
Creighton-Freeman Christian Hospital Mathura Uttar Pradesh	160	3-11 Feb 73	52	26	26
* Holy Family Hospital Delhi	115	26 March 1973	192	141	51
** St Joseph Hospital Dindigul Tamilnadu	350	17-23 Feb 73	189	153	36
Total			959	681	278
Percentage			100	71	30

* One day only
** Not by age and sex; included only in totals

Participants worked in pairs, analysing the material by age, sex, 'preventable', 'non-preventable' and 'special'. As each pair completed the analysis, the information was called out and recorded on a blackboard and percentages were calculated.

The bed strength of these hospitals varies from 52 to 350 beds; the total number of inpatients for one week for each hospital (except Holy Family, Delhi) was 959; 681 or 71 percent of these were analysed.

TABLE 2 Analysis of 681 patients (by age and sex) admitted during one week for conditions defined as 'preventable' and 'non-preventable' ('P' and 'NP')

2.1	UNDER-FIVES					
	Males		Females		Total	
	No.	%	No.	%	No.	%
'P'	19	63.3	16	72.7	35	67.3
'NP'	11	36.7	6	27.3	17	32.7
Total	30	100.0	22	100.0	52	100.0

2.2	5-14 YEARS	
	No.	%
'P'	18	48.6
'NP'	19	51.4
Total	37	100.0

2.3	15-44 YEARS					
	Males		Females		Total	
	No.	%	No.	%	No.	%
'P'	34	54.8	61	48.0	95	50.0
'NP'	28	45.2	66	52.0	94	50.0
Total	62	100.0	127	100.0	189	100.0

2.4	45+ YEARS	
	No.	%
'P'	28	25.4
'NP'	81	74.6
Total	109	100.0

2.5 SUMMARY ANALYSIS Irrespective of Age, Sex		
	No.*	%
'P'	301	44.0
'NP'	380	56.0
Total	681	100.0

* Total analysis includes 153 patients of the Holy Family Hospital in Delhi and 191 of St Joseph's in Dindigul, as data from these hospitals were not available by age and sex.

Note: As a result of some corrections, these figures vary slightly from the handouts at the workshop.

Summary of Table 2 Of 681 inpatients, the following were preventable admissions:

67.3% - under-fives
48.6% - 5-14 years
50.0% - 15-44 years
25.0% - over 45 yrs
44.0% - of total patients, regardless of age, were preventable admissions

These figures would have been considerably higher if more information had been available in the diagnosis as was listed.

Outpatients Of the eight hospitals, only four sent lists of 1000 consecutive first-attendance outpatients by age and sex and diagnosis. Three hospitals sent grouped diagnoses, which were difficult to analyse. In all, it was possible to analyse 4331 outpatients; of these, every fifth case was considered. The results were as follows:

TABLE 3 Analysis of selected 1032 outpatients from hospitals by age and sex and by conditions defined as 'preventable' and 'non-preventable' ('P' and 'NP')

3.1	UNDER-FIVES					
	Males		Females		Total	
	No.	%	No.	%	No.	%
'P'	53	80.3	41	80.4	94	80.4
'NP'	13	19.7	10	19.6	23	19.6
Total	66	100.0	51	100.0	117	100.0

3.2	5-14 YEARS	
	No.	%
'P'	49	70.0
'NP'	21	30.0
Total	70	100.0

3.3	15-44 YEARS					
	Males		Females		Total	
	No.	%	No.	%	No.	%
'P'	131	49.9	92	37.3	223	43.7
'NP'	132	50.1	155	62.7	287	56.3
Total	263	100.0	247	100.0	510	100.0

3.4	45+ YEARS	
	No.	%
'P'	24	22.8
'NP'	81	77.2
Total	105	100.0

3.5	SUMMARY ANALYSIS (OP) irresp. of age & sex	
	No.*	%
'P'	495	48.0
'NP'	537	52.0
Total	1032	100.0

*For one hospital, data by age and sex was not available. These 60 patients have been included in the total.

Summary of Table 3 Of 1032 outpatients, the following did not need hospital OPD care:

80.3% - under-fives
70.0% - 5-14 years
43.7% - 15-45 years
22.8% - over 45 yrs
48.0% - of total patients, regardless of age, need not have attended OPD.

CONCLUSION

These data should not mean that hospitals can be done away with. The figures are presented with the hope that hospitals may find it possible to reorganize their services, so that highly experienced doctors, specialists and sisters are not forced to waste their time on work that can be done by others.

If auxiliaries could be trained, given simple standing instructions on what to treat, what drugs to use, what to refer, then almost half the hospital work-load could be reduced. If auxiliaries are not available, it may be possible to train and use school teachers or girls with a high school education to work in their own villages, with supervision from the hospital staff.

Such reorganization will

- give the doctors and specialists more time;
- save hospital funds, facilities, beds, drugs and the time of the supporting staff;
- develop responsible paramedical staff;
- make it possible to serve greater numbers of people, as time of personnel and funds will become available;
- save family disruption caused by admissions that could be prevented;
- save the time spent at outpatient departments, which patients can use to earn a livelihood.

The advantages listed seem obvious. At the same time one can visualize the problems associated with reorganizing services, eg, for a while the hospital income will drop due to prevented admissions. It may be that admissions will increase again as patients needing treatment are diagnosed in the community. There will be problems of retraining the staff to fit into the changed pattern of service. Problems such as these and many others will arise, but if the value of reorganization is realized and accepted, the challenge of change will not seem insurmountable.

The nurse (back to the camera) talks to the villagers. A close link with the community is an important element of public health nursing in both urban and rural areas.
(Photo WHO)

CMC NEWS IN BRIEF

Ms Nita Barrow has just returned from Nicaragua, where she was invited to assist the Moravian Church implement the results of the survey which she and Sister Gilmary Simmons made in October of last year. This is her brief report:

The return visit to Nicaragua was a sad one and yet an exciting one. Sad because the evidence of the earthquake which destroyed 600 city blocks eleven months ago was still there. Tremendous efforts have been made and are continuing to clear the debris and to rebuild according to new plans. Exciting because of the manner in which people were picking up the pieces and moving on.

In Eastern Nicaragua the traditional hospitals were preparing to move still further into the delivery of health care at the primary level. They were examining the present needs and how resources are being used while, at the same time, working with government and other agencies in outreach work. The Provincial Synod of the Moravian Church, which is stated to take over direction of the medical work in the coming year, is now under indigenous leadership and is totally Nicaraguan. The manner in which they approached the formidable task ahead and the plans for becoming informed as a church and a caring community were very realistic.

In Managua the Baptist hospital had been completey destroyed, but they were operating a 28-bed hospital in old buildings and doing a very fine job. Most exciting, however, were two things:

1. The extension of their community programme to three deprived areas of Managua, run on the terms of the community, with volunteer help from the community and minimal outside staffing.

2. The Convention of the Baptist Church, on the very weekend I arrived, had decided to extend the community programmes in the areas of special need.

In addition to the above developments, there is a coming together of all the Protestant churches into one organization, known as CEPAD. The president is Dr Gustavo Parajon, the Nicaraguan physician who has given such an impetus to the Providencia community programme.